We have seen that it was stated at the trial that in consequence of Dr. Budge's reports the native agent has been dismissed for his pains. Dr. Budge has been mulcted by the verdict of the law-courts in a sum of something over, we hear, £1000. Hence arises another point of wide general interest regarding the treatment which should be accorded to confidential reports from subordinate officers by the higher officials. In the case with which we are at present concerned, Dr. Budge reported such things as he considered to be of importance for the information of his superior officers, and it was, one would think, their duty to sift such reports and to act upon them. For some reason or other, as we gather from the evidence at the trial, the trustees did not act upon them, from which fact Mr. Justice Cave inferred that Dr. Budge in repeating to Sir H. Layard part of the contents of his reports had repeated things which the trustees themselves had considered frivolous and trifling (*Times*, July 4). This, however, is no argument at all, for the reasons of the non-action of the trustees are unknown, and it does not follow that the trustees regarded them as vexatious and trifling. With the terror of the decision in this case before them, all members of the public service will be in duty bound to consider whether they are able to afford the expenses of an action at law, and the enormous costs which follow in its train, before they report unpleasant truths to their superiors. Who can complain if public servants, rather than incur the penalties of the law, hold back information they are in a position to give? Whether this will be good for the public service remains to be seen.

Mr. Justice Cave, referring to the depredations around the excavations, is reported to have said (*Standard*, July 4): "We all know that if you gave £300 for a cylinder like the one produced, it is an incentive for people to steal. It is like the poachers. They will take your own game if you will buy it of them, or they will take it anywhere they can get it." Mr. Justice Cave's facetious remark, however, is scarcely on all fours with the verdict of the jury. He owns that the excavating grounds in question are preserves belonging to the trustees of the British Museum; yet when a keeper reports in general terms that a large amount of poaching has been going on, he is heavily mulcted for his pains, because an individual chooses to assume that he was meant.

Here then are the facts; we believe that so far no action whatever has been taken by the Trustees; still we are glad to learn from the *Daily News* that Dr. Budge's *confrères* at all events have a sense of public duty. That paper states "that the keepers of departments and the assistants in the British Museum have combined to present Dr. Budge with a cheque in settlement of his damages in the recent libel action of 'Rassam *v.* Budge.' It is understood that this is not merely an expression of sympathy with a popular colleague, but that the action of the Museum officers was prompted by a strong feeling that as Dr. Budge has acted throughout in the interests of his department, it would be most unfair to allow him personally to suffer."

BRITISH ASSOCIATION MEETING IN NOTTINGHAM.

A FORTNIGHT ago some account was given of the local arrangements made for the entertainment of members of the British Association during their stay in Nottingham. The accommodation provided for the sections was also indicated. Fuller details on these matters will be found in the local programme now in course of preparation.

With regard to the more serious and useful functions of the Association, something of a preliminary and general character may now be stated.

It is with feelings of great satisfaction that members will welcome Dr. Burdon Sanderson as general president at Nottingham, and it will be unnecessary in a scientific periodical to refer to the eminent service which has been rendered to scientific progress by the president elect.

The acceptance of the following gentlemen of the positions of sectional presidents will also do much to ensure the success of the sections:—Mr. R. T. Glazebrook, Dr. Emerson Reynolds, Mr. J. J. H. Teall, Rev. Dr. H. B. Tristram, Mr. Henry Seebohm, Dr. J. S. Nicholson, Mr. Jeremiah Head, and Dr. H. Robert Munro.

In respect to these appointments universal regret will be felt at the inability of Prof. Clifton to fulfil the duties of the president's chair in Section A, which he had accepted, owing to serious family trouble. But the acceptance of the position by Mr. Glazebrook will beyond doubt cause general satisfaction.

The work of the sections will in part be connected with receiving the reports to be made by the various research committees. Amongst these the following subjects are included:—Electrical standards, meteorological observations on Ben Nevis, the application of photography to meteorology, calculation of tables of certain mathematical functions, recording direct intensity of solar radiation, wave-length tables of the spectra of the elements, an international standard for iron and steel analyses, the direct formation of haloids from pure materials, action of light on dyed colours, isomeric naphthalene derivatives, erratic blocks in England, the fossil phyllopoda of palæozoic rocks, the collection of geological photographs, the circulation of underground waters and their use as water-supplies, the zoology of the Sandwich Islands and of the West India Islands, exploration of the Irish Sea, the inhalation of oxygen in asphyxia, methods of economic training, exploration of ancient remains in Abyssinia, the characteristics of natives of Canada and of India, the recalescent points in metals, volcanic phenomena in Japan, the Pellian equation, the discharge of electricity from points, comparing and reducing magnetic observations, optical constants of lenses, ultra-violet rays of the spectrum, meteoric dust, rate of increase of underground temperature, the bibliography of solution and the properties of solutions, the bibliography of spectroscopy, the silent electrical discharge in gases, the action of light on the hydracids of the halogens in presence of oxygen, the proximate chemical constituents of various kinds of coal, the history of chemistry, the erosion of sea-coasts in England and Wales, the volcanic phenomena of Vesuvius, type-specimens of British fossils, investigation of the remains in Elbolton Cave, structure of a coral reef, the migration of birds, the protection of wild birds' eggs, the teaching of science in elementary schools, graphic methods in mechanical science, prehistoric and ancient British remains, the physical deviations from the normal among children in elementary and other schools.

Amongst the other subjects of general interest, which will probably be introduced and discussed, are the following:—

In Section A the question of the national physical laboratory, of the central publication of physical papers, of magnetic and other units, and of mechanical connection between ether and matter will probably be raised. It is expected that a discussion on the teaching of physics in schools will take place, as well as a joint discussion with Section C on "Earth Tremors."

Section B will receive communications raising discussion on explosions in coal mines, flame, bacteriology, recent progress in inorganic chemistry, and recent research in organic chemistry, especially in connection with colour and colouring matters. The papers on these subjects are to be classified, and each class will be considered on a special day, of which due notice will be given.

In Section C the presidential address will deal with "The Doctrine of Uniformitarianism as illustrated by

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recent petrographical research," a subject which Mr. Teall has almost made his own. Papers are expected on East Africa, the new red sandstone of the Midlands, the igneous rocks of Derbyshire, the boulder clays and drifts of the Midlands, the methods and need of teaching geology both as a branch of education and as a valuable training to engineers, miners, and others. Sections C and D will jointly discuss "Fossil and Recent Coral Reefs," both in respect to their origin and in relation to the part which corals have played in the formation of the earth's crust. Sections C and E will also hold a joint meeting for considering the mutual relations of geology and geography.

In Section D Prof. Bohr, of Copenhagen, is expected to communicate the results of researches of great importance on the chemical process of respiration. A discussion will also probably take place on the question how far the fundamental peculiarities of vital processes admit of being explained as merely resulting from the *complication* of the chemical and physical processes of which they consist. It is expected that other moot questions of fundamental importance in biology will also be brought under discussion.

The President of Section E will treat in his address of the Polar Basin, laying stress on some generally forgotten facts and summarising our knowledge of the margin of the Arctic Sea. Mr. W. M. Conway will give an account of his mountaineering experiences in the Karakorum Range. Messrs. Bruce, Burn-Murdoch, and Donald will describe with photographs and paintings the scientific results of a recent sealing expedition to Antarctic waters. Mr. Guy Boothby will describe his journey across Australia from north to south. There will also be papers on the influence of their geographical surroundings upon the people of Northern India, by Mr. E. Henwood, and a similar paper on the Congo Basin by Mr. Herbert Ward. Mr. H. R. Mill will describe the physical geography of the Clyde sea area, and the bathymetrical survey of the English lakes, and Mr. B. V. Darbishire will contribute a paper on some conditions of cartographic representation of distributions.

In Section F the subject of the presidential address will be "The Reaction in favour of the Classical Political Economy." Papers are expected to be read for discussion on the monetary situation by Profs. Foxwell and Cunningham, on agricultural depression by Messrs. H. H. Scott and L. L. Price, on corn averages by Mr. R. Hooker, on Australian banking by Dr. C. Gairdner, on Poor Laws by Dr. F. Wilkinson, on industrial arbitration by Mr. D. Schloss, on the employment of the unemployed, on local industries and the history of Nottingham lace by Mr. Frith and others.

The arrangements for Section G have not been received as yet, but the many promises received from eminent English and foreign engineers to attend the meeting leaves no doubt that the proceedings of this Section will be of unusual interest.

In Section H the subject of the presidential address will be one special phase of man's development. The papers and discussions in this section, always of a diversified and popular character, promise to be of more than usual interest this year. Dr. Hans Hildebrand, Royal Antiquary of Sweden, contributes a paper on "Anglo-Saxon remains, and the coeval ones in Scandinavia," and it is proposed to make his communication the basis of a general discussion, chiefly with the view of defining the special characteristics of Anglo-Saxon remains in this country as distinct from those of Celtic and Scandinavian origin. Another subject, also full of interest and even novelty to English archæologists, is the recently discovered prehistoric lake or marsh village near Glastonbury, which is to be brought before the section by its discoverer, Mr. Arthur Bulleid. As the buried ruins of this village are now being excavated on a larger scale than during the previous summer, it is expected that the amount of industrial remains, already of much archæological value, will be greatly enhanced before the meeting of the Association. It has therefore been suggested that the reading of Mr. Bulleid's report of these researches will be a good opportunity for the eminent archæologists, who have agreed to act as a committee of reference and advice, to discuss the more salient features of this remarkable discovery, and to describe from different standpoints its bearing on the early history of our country. This method of dealing with such a discovery is eminently well adapted both for furthering the objects of the Association and for communicating valuable information to the investigators themselves; and it is earnestly hoped that the committee of experts will find it convenient to be present. Nor do these interesting subjects by any means exhaust the list of the forthcoming materials. Anthropology proper will come largely to the front, and will receive special consideration in the president's opening address to the section, as has been stated above.

Among the more popular scientific communications, the presidential address and the popular evening lectures must take their place. The popular lecturers are Prof. Smithells, who will describe and illustrate his recent researches on "Flame;" Prof. Victor Horsley, who will treat of "The Discovery of the Physiology of the Nervous System;" and Prof. Vivian Lewis, who will lecture to the local working-men on "Spontaneous Ignition." In connection with the last announcement it may be noted that the introduction of the working-men's lecture dates from the last meeting of the Association in Nottingham.

It will probably be possible to make a further communication in our next issue, bringing forward the announcement of the principal arrangements for work and entertainment in a state more nearly approaching completeness and finality. FRANK CLOWES.

MAGNETO-OPTIC ROTATION.

FARADAY'S famous discovery of the rotation of the plane of polarised light by passing the beam through a piece of his heavy glass placed along the lines of force of a magnetic field, was the starting point of the very important department of science now known as electro-optics. From this, as the first observed physical relation between optical and magnetic phenomena, has come the electromagnetic theory of light with all the magnificent researches and discoveries which have marked its experimental verification in recent years. I propose in the present article to give a short account mainly of magneto-optic rotation and the progress which has been made towards its dynamical explanation, followed by a brief discussion of some of the more intimately related phenomena which have been brought to light by recent investigations. It is no part of my plan however to discuss the experimental methods employed in the various researches referred to.

In the first place the magneto-optic relation which Faraday found is to be distinguished from the apparently similar effect which is produced by passing plane polarised light through a plate of quartz cut at right angles to the optic axis, or through a solution of sugar or tartaric acid. In the latter case the turning of the plane of polarisation depends only on the positions of the displaced particles of or in the elastic medium which forms the vehicle of the wave, and not on their motions; in the former the effect is a result of the motions of particles of other matter imbedded in or loading the surrounding ether.

The following illustration is I believe substantially what I have heard given by Lord Kelvin. Imagine two elastic jellies, one bored full of small helical cavities, either all right-handed or all left-handed, and having their axes all in one direction; the other having in it

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